UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,394	04/04/2005	Eric Verschueren	234854	5786

23460 7590 08/07/2006

LEYDIG VOIT & MAYER, LTD
TWO PRUDENTIAL PLAZA, SUITE 4900
180 NORTH STETSON AVENUE
CHICAGO, IL 60601-6780

EXAMINER	
ZIMMERMAN, JOSHUA D	

ART UNIT	PAPER NUMBER
2854	

DATE MAILED: 08/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/530,394	VERSCHUEREN, ERIC	
	Examiner	Art Unit	
	Joshua D. Zimmerman	2854	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12 and 15-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 15-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 4, 5, 6, 17 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Kamitani (US 2002/0098288).

Regarding claim 1, Kamitani teaches "a method of making a heat-sensitive lithographic printing plate precursor (paragraph 11) comprising the steps of

(i) providing a web of a lithographic support having a hydrophilic surface (paragraph 12 and paragraph 47, lines 13-15);

(ii) applying a coating comprising a phenolic resin on the hydrophilic surface of the web (paragraph 51);

(iii) drying the coating (paragraph 12);

(iv) a heating step wherein the web temperature is maintained above 150°C during a period of between 0.1 and 60 seconds (paragraph 12, 3rd example from the bottom of table 1); and

(v) winding the precursor on a core or cutting the precursor into sheets (paragraph 70)."

Regarding claim 5, Kamitani further teaches "further comprising a cooling step between step (iv) and step (v) (paragraph 38).

Regarding claim 6, Kamitani further teaches "wherein during the cooling step the web temperature of the precursor is reduced at an average cooling rate which is higher than if the precursor would be kept under ambient conditions (paragraph 39)."

Regarding claim 4, Kamitani further teaches "wherein the heating step is carried out by exposing the precursor to infrared or microwave radiation (paragraphs 33 and 37)."

Regarding claim 17, Kamitani further teaches "further comprising a cooling step between step (iv) and step (v) (paragraph 38)."

Regarding claim 22, Kamitani further teaches "wherein during the cooling step the web temperature of the precursor is reduced at an average cooling rate which is higher than if the precursor would be kept under ambient conditions (paragraph 39)."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 7, 8, 10 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani.

Kamitani teaches all that is claimed in claims 5, 6 and 22, as discussed above.

Regarding claims 7 and 23, Kamitani does not specifically teach "wherein said average cooling rate is at least 0.5°C/s." However, Kamitani does teach the use of a forced cooling system (paragraph 39) in conjunction with a continuous web-type system (figure 1). The exact cooling rate is not disclosed, but this is a rapid cooling system (paragraph 41) similar to the system claimed by applicant (page 8, lines 3-7 of applicant's disclosure). Further, Kamitani teaches the desire to have a short cooling time in order to decrease the time until an overcoat layer can be applied (last sentence of paragraph 39). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to set the cooling rate at a rate higher than 0.5°C/s in order to achieve a quick cooling time in order to prepare the precursor for an overcoat.

Regarding claims 8, 24 and 25, applicant admits the Tg of phenolic resins to be between 75°C and 95°C (page 10, lines 5-7 of applicant's disclosure). Kamitani discloses cooling from temperatures above 95°C (Table 1 and Table 2) to temperatures below 75°C (paragraph 41). The exact cooling rate is not disclosed, but this is a rapid cooling system (paragraph 41) similar to the system claimed by applicant (page 8, lines 3-7 of applicant's disclosure). Further, Kamitani teaches the ability change the cooling time to meet process needs (last sentence of paragraph 39). Also, it is an inherent property of polymer processing that cooling too quickly from a temperature above the Tg to a temperature below the Tg results in voids and/or other defects in the polymer microstructure, thus deteriorating the polymer stability. Therefore, it would have been

obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to make the cooling rate less than 10°C/s in order to prevent the formation of voids and/or other defects, so as to enhance the stability of the polymer in the printing plate precursor.

Regarding claim 10, Kamitani further teaches "T1 is Tg+20°C and T2 is Tg-20°C (paragraph 41 and table 1 and table 2. The high temperatures are 20 degrees higher than Tg and the low temperatures are 20 degrees lower than Tg).

3. Claims 3, 16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani as applied to claim 1 above, in view of Kojima et al. (US 5,380,612).

Regarding claim 3, Kamitani does not specifically teach "wherein the heating step is carried out by blowing hot air or steam onto the precursor." However, Kamitani does suggest it is possible to use hot air to heat the printing plate (paragraph 37, lines 2-3). Further, Kojima et al. teach the equivalence of hot air heaters to infrared heaters (column 10, lines 55-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a hot air heater in place of the heater of Kamitani to save money by using existing hot air heaters.

Regarding claim 16, Kamitani further disclose "further comprising a cooling step between step (iv) and step (v) (paragraph 38)."

Regarding claim 19, Kamitani further disclose "wherein during the cooling step the web temperature of the precursor is reduced at an average cooling rate which is higher than if the precursor would be kept under ambient conditions (paragraph 39)."

4. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani in view of Kojima et al. as applied to claims 3, 16, and 19 above.

Regarding claim 21, Kamitani if view of Kojima et al. does not specifically teach "wherein said average cooling rate is at least 0.5°C/s." However, Kamitani does teach the use of a forced cooling system (paragraph 39) in conjunction with a continuous web-type system (figure 1). The exact cooling rate is not disclosed, but this is a rapid cooling system (paragraph 41) similar to the system claimed by applicant (page 8, lines 3-7 of applicant's disclosure). Further, Kamitani teaches the desire to have a short cooling time in order to decrease the time until an overcoat layer can be applied (last sentence of paragraph 39). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to set the cooling rate at a higher than 0.5°C/s in order to achieve a quick cooling time in order to prepare the precursor for an overcoat.

5. Claims 9, 26, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani, as applied to claims 8, 24 and 25 above, in view of Price (6,007,240).

Regarding claims 9, 26 and 27, Kamitani does not specifically disclose three different phases. However, it is an inherent property of polymer processing that cooling too quickly from a temperature above the Tg to a temperature below the Tg results in voids and/or other defects in the polymer microstructure, thus deteriorating the polymer

stability. It is also a property of the glass transition region that polymer relaxation effects are stronger than above or below the transition region. Price teaches this fact (column 5, lines 63-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to have a slower cooling rate in the glass transition region in order to reduce the formation of voids and/or other defects, so as to enhance both the microstructure and the stability of the polymer in the printing plate precursor.

Regarding the further limitation of a cooling rate of at least 10°C/s in the first and third phases, Kamitani teaches the desire to have a short cooling time in order to decrease the time until an overcoat layer can be applied (last sentence of paragraph 39). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to set the cooling rate at a rate higher than 10°C/s in these regions in order to achieve a quick cooling time in order to prepare the precursor for an overcoat.

Regarding claim 28, Kamitani further teaches "T1 is Tg+20°C and T2 is Tg-20°C (paragraph 41 and table 1 and table 2. The high temperatures are 20 degrees higher than Tg and the low temperatures are 20 degrees lower than Tg).

6. Claims 2, 12, 30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani as applied to claim 1 above, in view of McCullough et al. (WO 99/21715). Kamitani teaches all that is claimed in claim 1, as discussed above. Kamitani does not specifically teach "wherein during the heating step the web temperature is maintained above 170°C during a period of between 1 and 30 seconds."

Kamitani does suggest the ability to vary the temperature and time conditions in order to achieve desired results (see, for example, Table 1 and Table 2). McCullough et al. teach a method of heating a printing plate precursor (abstract). Further, McCullough et al. teach the desire and ability to vary, by trial and error, the time and temperature settings to achieve desired sensitivity in the printing plate precursors (page 7, lines 23-24 and lines 33-34). McCullough et al. also teach that when the printing plate precursors are heated to a higher temperature, the precursors should be held at that temperature for a shorter time (see the sentence bridging pages 7 and 8). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to maintain the temperature of the precursors above 170°C for a period of between 1 and 30 seconds in order to achieve a desired sensitivity.

Regarding claim 12, Kamitani further teaches "wherein the heating step is carried out by exposing the precursor to infrared or microwave radiation (paragraphs 33 and 37)."

Regarding claim 30, Kamitani further teaches "further comprising a cooling step between step (iv) and step (v) (paragraph 38)."

Regarding claim 32, Kamitani further teaches "wherein during the cooling step the web temperature of the precursor is reduced at an average cooling rate which is higher than if the precursor would be kept under ambient conditions (paragraph 39)."

7. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani in view of McCullough et al. as applied to claims 2, 12, 30 and 32 above.

Kamitani in view of McCullough et al. fails to specifically teach "wherein said average cooling rate is at least 0.5°C/s." However, Kamitani does teach the use of a forced cooling system (paragraph 39) in conjunction with a continuous web-type system (figure 1). The exact cooling rate is not disclosed, but this is a rapid cooling system (paragraph 41) similar to the system claimed by applicant (page 8, lines 3-7 of applicant's disclosure). Further, Kamitani teaches the desire to have a short cooling time in order to decrease the time until an overcoat layer can be applied (last sentence of paragraph 39). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to set the cooling rate at a rate higher than 0.5°C/s in order to achieve a quick cooling time in order to prepare the precursor for an overcoat.

8. Claims 11, 15, 18, 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani in view of McCullough as applied to claim 2 above, and further in view of Kojima et al. (US 5,380,612).

Regarding claim 11, Kamitani does not specifically teach "wherein the heating step is carried out by blowing hot air or steam onto the precursor." However, Kamitani does suggest it is possible to use hot air to heat the printing plate (paragraph 37, lines 2-3). Further, Kojima et al. teach the equivalence of hot air heaters to infrared heaters (column 10, lines 55-58). It would have been obvious to one of ordinary skill in the art at

the time of the invention to use a hot air heater in place of the heater of Kamitani to save money by using existing hot air heaters.

Regarding claim 29, Kamitani further teaches "further comprising a cooling step between step (iv) and step (v) (paragraph 38)."

Regarding claim 31, Kamitani further disclose "wherein during the cooling step the web temperature of the precursor is reduced at an average cooling rate which is higher than if the precursor would be kept under ambient conditions (paragraph 39)."

Regarding claim 15, Kamitani further teaches "further comprising a cooling step between step (iv) and step (v) (paragraph 38)."

Regarding claim 18, Kamitani further teaches "wherein during the cooling step the web temperature of the precursor is reduced at an average cooling rate which is higher than if the precursor would be kept under ambient conditions (paragraph 39)."

9. Claims 20 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani in view of McCullough et al. further in view of Kojima et al. as applied to claims 11, 29 and 31 above.

Regarding claims 20 and 33, Kamitani in view of McCullough et al. further in view of Kojima et al. does not specifically teach "wherein said average cooling rate is at least 0.5°C/s." However, Kamitani does teach the use of a forced cooling system (paragraph 39) in conjunction with a continuous web-type system (figure 1). The exact cooling rate is not disclosed, but this is a rapid cooling system (paragraph 41) similar to the system claimed by applicant (page 8, lines 3-7 of applicant's disclosure). Further, Kamitani

teaches the desire to have a short cooling time in order to decrease the time until an overcoat layer can be applied (last sentence of paragraph 39). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, through routine experimentation, to set the cooling rate at a rate higher than 0.5°C/s in order to achieve a quick cooling time in order to prepare the precursor for an overcoat.

Response to Arguments

10. Applicant's arguments filed 06/07/2006 have been fully considered but they are not persuasive.

Anticipation Rejection

Applicant argues that Kamitani does not anticipate the method claimed. However, Kamitani clearly discloses the claimed temperature range in Table 1, 3rd example from the bottom, and the anticipation rejection is maintained.

Obviousness Rejections

Claims 7, 8, 10, and 23-25

Applicant's argument that Kamitani teaches away from changing the cooling time to a slower average cooling rate is moot since the rejection of claim 8 relies upon the teaching in paragraph 39 of the ability and desire to change the cooling time to meet the process needs. Thus the rejection is maintained.

Applicant's argument regarding claim 10 that Kamitani doesn't disclose the two temperatures T1 and T2, applicant is referred again to tables 1 and 2, and paragraph 41. Since applicant admits that the Tg of phenolic resins is between 75 and 95°C (page 10, lines 5-7 of applicant's specification), the high and low temperatures disclosed in

tables 1 and 2 and paragraph 41 clearly meet the claimed values of T1 and T2 since values listed for T1 are greater than Tg + 20 and values listed for T2 are less than Tg - 20. Thus the rejection is maintained.

Claims 3, 16 19 and 21

Applicant argues that Kojima fails to teach the equivalence of various types of heaters. However, Kojima lists several types of heaters for heating a photosensitive printing plate, including hot air heaters and infrared heaters. Kojima further teaches that one can be arbitrarily selected from the list. Since Kojima gives no preference to which type of heater should be used, and even says that one can be "arbitrarily selected," clearly the listed means for heating are equivalents. Thus the rejection is maintained.

Claims 9 and 26-28

Applicant argues that Kamitani fails to teach three distinct ranges of cooling; examiner agrees, however, this was not the basis of the rejection. Price clearly teaches the existence of a middle phase, which is the glass transition region. In light of the teaching of Price, clearly there are now three distinct regions: above the glass transition region, the glass transition region, and below the glass transition region.

Applicant further argues that Kamitani fails to teach a slower cooling in the glass transition region. Again, the examiner agrees; however, once again, Kamitani was not relied upon in the rejection for the teaching of a slower cooling rate in the glass transition region. Motivation was found in the inherent property of polymer processing that cooling too quickly results in voids and/or other defects in the microstructure, and in the inherent property of the glass transition region that polymer relaxation effects are

stronger in the glass transition region, the latter property being confirmed by Price. Thus, the rejection is maintained.

Claims 2, 12, 30, 32 and 34

Applicant argues that Kamitani teaches away from temperatures above 170°C. Examiner disagrees. While Kamitani teaches, in paragraph 25, a range of temperatures from 125 to 145°C, said range is in regards to the *final* temperature of the layer, not specifically the heated temperature. The language of paragraph 25 allows for other temperatures to be achieved prior to the 'final' temperature.

Regardless, Kamitani still teaches the ability and desire to vary the temperature and time conditions in order to achieve the desired results (Tables 1 and 2). Further, in Tables 1 and 2, one can see that for higher temperatures, lower times are required, leading one having ordinary skill in the art to the conclusion that higher temperatures could be used with lower hold times.

Applicant also argues that McCullough et al. teach away from a heating step wherein the temperature is above 170°C. However, McCullough et al. only 'favor' using temperatures not in excess of 90°C, as a general 'guide' (page 7, line 25), and actually suggest much higher temperatures are possible (page 7, lines 17-21). Further McCullough et al. chose the specified temperature 'guide' because of the 'criticality' of the low times that would be required at high temperatures (page 7, lines 17-23). McCullough et al. clearly teach that it is obvious to use trial and error (that is, routine experimentation) to determine the exact heating temperature and hold times (page 7, lines 23-24), and in light of the fact that they suggest the possibility of much higher

temperatures, one having ordinary skill in the art would have been motivated through routine experimentation to maintain the temperature above 170°C for a period of between 1 and 30 seconds.

Applicant further argues that McCullough et al. do not teach that precursors should be held at higher temperatures for shorter periods of time. However, since McCullough et al. teach that "the lower the temperature for the heat treatment, the longer the time should be (sentence bridging pages 7 and 8)," the contrapositive is implicitly taught. That is, the higher the temperature for the heat treatment, the shorter the time should be.

Thus the rejection is maintained.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua D. Zimmerman whose telephone number is 571-272-2749. The examiner can normally be reached on M-R 8:30A - 6:00P, Alternate Fridays 8:30A-5:00P.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joshua D Zimmerman
Examiner
Art Unit 2854

jdz

REN YAN
PRIMARY EXAMINER